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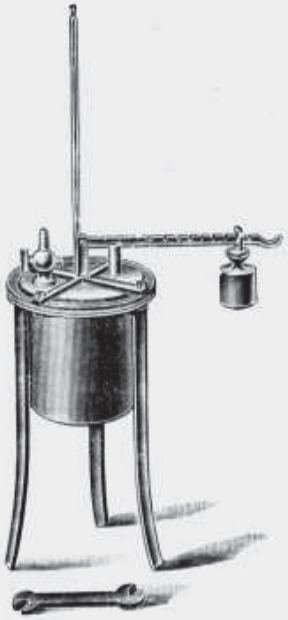
1669.

1649. **Wood's alloys** (W. D., p. 512) . . . . . $ 0,45

Many alloys have a lower melting point than the metals of which they consist. Thus whilst bismuth melts at 265°, lead at 330° tin at 230°, and cadmium at 321°, Wood's alloy, consisting of 7 parts of bismuth, 4 parts of lead, 2 parts of tin and 1 part of cadmium, melts at about 70°. A test tube is filled to the height of several centimeters with water, the latter raised to the boil and whilst the tube is held in a sloping position a few pieces of the alloy added. The alloy at once melts.

1653. **Vapour barometer** to show increase of tension of saturated water vapour with rise of temperature (W. D. Fig. 353, p. 513), with stand, unfilled. [Fig. 1/10 nat. size.] » 5,50

The barometer is best filled as follows. The barometer tube is about two thirds filled with pure mercury, the fused on extension on the longer limb is attached to an air pump by means of a piece of thick walled rubber tube and the tube exhausted as completely as possible. The tube is now inclined so that the mercury stands a centimeter below the narrowest part of the tube, the latter is held in position by a clamp and the capillary sealed by a flame. About 2 cm of water is put into the wide limb and the tube connected with the air pump and exhausted. The mercury in the longer limb falls and the water in the shorter limb soon begins to boil. The water is then slightly warmed and the capillary on the wide limb sealed off. The mercury in the long limb should now stand about 1 or 2 cm higher than in the wide limb because of the additional pressure in the wide limb due to the weight of the water and the pressure of the water vapour. For the experiment the barometer vessel is surrounded with the vapour jacket and fastened in the stand. On passing steam through the apparatus the mercury rises in the longer limb until the difference in level is equal to the barometric height.

1657. **Apparatus to measure the vapour tension of different liquids,** with three barometer tubes in common mercury trough, on iron stand. The tubes with glass stopcocks. [Fig. 1/10 nat. size] . . . . . $ 9,75

Two of the cocks are smeared with grease and the third with glycerine, all three cocks are closed and the tubes filled with mercury as in the Torricelli experiment and clamped in the stand. The mercury stands at the barometric level. The funnel over the tap smeared with glycerine is half filled with ether, one of the other two tubes being similarly used for water. On opening the cocks the liquides pass into the tubes and the mercury falls to a level corresponding with the vapour pressure at the temperature of the experiment. The third tube serves for comparison.

1665. **Pulse hammer** to show boiling in a vacuum. This is filled with red coloured alcohol and air expelled as completely as possible before sealing. [Fig. 1/5 nat. size.] » 0,40

The apparatus is held in the hand as shown in the figure. The alcohol is caused by the heat of the body to boil violently and is driven into the other bulb; the hand experiences a feeling of cold.

1667. **Singing water hammer** with fused-in point. [Fig. 1/6 nat. size.] . . . . . » 0,50

The water is allowed to flow into the bulb, the apparatus inverted and the tube warmed with the hand. The vapour bubbles rise from the warm tube into the bulb and are there condensed with a sharp sound and disappear. The instrument is thus caused to sing.

1668. **Papin's digester,** of strong copper tinned inside, with brass cover and ground-in conical safety valve of 1 qcm pressure area. Pressure regulated by sliding weight on lever arm. Thermometer in iron tube, frame of wrought iron . . . . . » 12,50

1669. — with tap in cover in addition. [Fig. 1/9 nat. size.] . . . . . » 14,00

1670. — with manometer also . . . . . » 18,75

1672. **Copper dish for Leidenfrost's experiment.** (W. D. Fig. 355, p. 520.) Diam. 55 mm » 0,50

For heating, the dish is placed on a wire triangle supported by a tripod, and a Bunsen or Teclu burner or a blowpipe used. If water is squirted from a wash bottle on to the hot plate so that it comes into actual contact with it the water rapidly evaporates with violent hissing. But if water is gently dropped from a pipette on to the plate it assumes the spheroidal state. To show the phenomenon better by projection the dish is placed inverted on the triangle and a drop of water brought on to the plate by means of a strong 6 mm glass rod drawn out to a point. The experiment can also be shown according to Poppendorff by connecting the dish by a binding screw to one pole of a battery, the other pole being connected to the drop, with a galvanometer in circuit. Whilst the drop is in the spheroidal state the galvanometer shows no deflection but as soon as the burner is removed the drop makes contact with the plate and a deflection is shown.

1673. **Copper flask with handle,** to show the force of explosive ebullition when boiling is delayed. [Fig. 1/8 nat. size.] . . . . . » 2,50

The bottom of the flask is heated nearly to redness and a few drops of previously boiled water gradually added; the flask is then closed with the bored cork and the flame removed.

1675. **Apparatus to study the behaviour of saturated and superheated vapour.** (W. D. Fig. 357, p. 524.) On iron stand. (Compare W. D., p. 523, note.) [Fig. 1/11 nat. size.] » 17,50

After removing the jacket, mercury is poured into the middle tube until the reservoir is nearly full when placed at such a height that the mercury stands in the three tubes about 1 inch above their junction. The tube is now raised as high as possible and one